

**REMARKS**

**STATUS OF THE CLAIMS**

Claims 1-22 are pending in the application. Claims 4, 9, 12-14, and 16 are amended to correct informalities and to more clearly state the claimed invention. Claims 17 and 18 are amended incorporating matter found in the specification. No new material is added.

Applicants have thoroughly reviewed the outstanding Office Action including the Examiner's remarks and the references cited therein. The following remarks are believed to be fully responsive to the Office Action. All the pending claims at issue are believed to be patentable over the cited references.

**OATH/DECLARATION**

As requested by the Examiner, a new oath or declaration without defects is appended to this response.

**OBJECTION**

Claim 9 is objected to for lack of antecedent basis. Applicants have amended the dependency of claim 9 to obviate this objection.

**REJECTION UNDER 35 U.S.C. § 112**

Claims 12 and 16 stand rejected under 35 U.S.C. § 112, second paragraph. Applicants have amended claims 12 and 16 to obviate this rejection. Applicants have also amended claims 13, 14, 17, and 18 to be consistent with the terminology of amended claims 12 and 16. Therefore, these claims are not amended to overcome art or for statutory purposes, but are amended for consistency.

REJECTION UNDER 35 U.S.C. § 102

Claims 1, 3-6, 8, and 19-22 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Ramsey et al. (U.S. Patent No. 5,930,266). Applicants respectfully traverse this rejection.

Applicants' independent claim 1 recites "a first rectangular waveguide section, a first elliptic filter section, ported to said first rectangular waveguide section at a substantially perpendicular angle thereto, with a common electrical-signal axis thereto, a second elliptic filter section, ported to said first rectangular waveguide section at a substantially perpendicular angle thereto and substantially parallel to said first elliptic filter section, with an electrical-signal axis parallel to that of said first elliptic filter section, and a second rectangular waveguide section affixed to, ported to, and terminating said first and second elliptic filter sections."

Applicants' independent claim 21 recites: "first means for guiding an RF broadcast signal along a path with a conductive boundary, along which path the signal can propagate, first means for directing a component of the RF broadcast signal within a specific frequency range and a specific phase orientation along a path at right angles to the first conductively-bound path, wherein the in-band, rolloff, and out-of-band characteristics of the first means for directing correspond to those of an elliptic filter, second means for guiding the remnant RF broadcast signal further along the initial path, second means for directing an RF broadcast signal component at the same frequency as but out of phase with respect to the RF broadcast signal component directed by the first means for directing, wherein said second means for directing directs the RF signal component that was out of phase with respect to and unable to be directed by said first means for directing, and wherein the in-band, rolloff, and out-of-band characteristics of the second means for directing correspond to those of an elliptic filter, third means for guiding the out-of-band energy of the RF broadcast signal along a further path exiting the apparatus, means for rejoining the specific RF broadcast signal components back together in their original phase relationship, and fourth means for guiding the rejoined RF broadcast signal components along a further path out of the apparatus."

Applicants' independent claim 22 recites: "admitting an RF broadcast signal into a first portal waveguide, propagating the RF signal along the first portal waveguide, admitting any in-band RF signal energy at a first phase angle from the RF broadcast signal into a first elliptic filter, further propagating the RF signal along a continuation of the first portal waveguide for a distance approximating an odd number of quarter wavelengths of the in-band component of the RF signal, admitting from the RF broadcast signal into a second elliptic filter any in-band RF signal energy out of phase with respect to the RF signal energy admitted into the first filter, passing any RF broadcast signal energy admitted into neither filter out the end of the first portal waveguide, collecting the in-band RF signal energy passed through either elliptic filter into a second portal waveguide with a geometry that restores the original phase relation of the in-band RF signal components, and passing the recombined in-band RF signal energy out of the end of the second portal waveguide."

Applicants submit that Ramsey et al. does not teach or suggest the combinations recited by Applicants' independent claims 1, 21, and 22. In particular, Ramsey et al. is directed to frequency division multiplexing in a satellite communication system (column 1, lines 6-8). A network of switches  $16_1-16_n$  selectively directs signals via various band pass/band stop or low pass/high pass filters  $17_1-17_n$  (col. 3, ll. 2-6) to one of two output antennas (col. 1, ll. 37-52). The applied signals can be multiplexed using a concatenation of combiners, provided the band pass and band stop properties of the combiners are chosen such that each of two separate combiner assemblies performs either the band pass function or the band stop function for each signal (col. 3, ll. 9-24).

Ramsey et al. uses a single filter section for coupling between input and output waveguides in each filter/combiner, uses a single port to admit both longitudinal and transverse components of a signal into the single filter at a point along the input waveguide, and uses a single port to output both longitudinal and transverse components of a signal into the output waveguide from each

filter/combiner (emphasis added). For example, in discussing FIG. 10, Ramsey et al. states: “Coupling into the input cavity 27 from the input rectangular waveguide 22, and out of the output cavity 27 into the output rectangular waveguide 21, is realized via an aperture suitably located to couple equal amounts of energy from the longitudinal and transverse components of the rectangular waveguides’ TE<sub>10</sub> dominant mode.” (col. 5, ll. 3-8). These apertures, seen in FIG. 10 as 30 and 29, are used to couple from the waveguide 22 into the first cavity 27. A circularly polarized TE<sub>111</sub> signal established in this cavity is decomposed into orthogonal components, passed through the two filter cavities 28, recombined into a TE<sub>111</sub> signal in the second cavity 27, and coupled as orthogonal components into the output waveguide 21 (col. 5, ll. 12-26). See also FIG. 11 for aperture locations. As is apparent from Ramsey et al., the second waveguide 21 does not terminate a first filter section and a second filter section, but instead terminates a single filter section having a single input aperture and a single output aperture.

Applicants’ independent claim 1, by contrast, recites a filter/combiner wherein two separate filters are ported to the input waveguide and to the output waveguide, wherein the first filter uses an input port “with a common electrical-signal axis” to the “first rectangular waveguide section” and wherein the second filter uses an input port “with an electrical-signal axis parallel to that of said first elliptic filter section.”

In Applicants’ independent claim 21, the means claimed is distinct from the means disclosed in Ramsey et al. at least because the means disclosed by Ramsey et al. (beginning, for example, at col. 4, line 19) employs a single filter means that directs a signal with both transverse and longitudinal components from an input to an output (emphasis added).

In Applicants’ independent claim 22, the method claimed is distinct from the method disclosed in Ramsey et al. at least because the method disclosed by Ramsey et al. (beginning, for example, at col. 4, line 19) directs a signal from an input to an output using a single filter that admits and outputs both transverse and longitudinal components (emphasis added).

Thus, Ramsey et al. does not teach or suggest all the features of Applicants' independent claims 1, 21, and 22. Because Ramsey et al. does not teach or suggest each and every element in these claims, Applicants respectfully submit that a § 102 rejection is not proper.

Claims 3-6, 8, 19, and 20 depend from claim 1. Applicants therefore assert that these dependent claims are allowable over Ramsey et al. at least by reason of their dependency.

At least for the reasons stated above, independent claim 1 and its dependent claims 3-6, 8, 19, and 20, as well as independent claims 21 and 22, are patentable over the Ramsey et al. reference. Applicants respectfully request that the § 102 rejection of claims 1, 3-6, 8, and 19-22 be removed.

#### REJECTION UNDER 35 U.S.C. § 103

Claims 2, 7, and 9-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ramsey et al. in view of Tong (U.S. 4,614,920). Applicants respectfully traverse this rejection.

Tong is directed to a satellite communication multiplexer. There is no disclosure in Tong regarding use as a multiple filter, input/output waveguide configuration as claimed in Applicants' claim 1. Therefore, the satellite communication multiplexer of Tong does not supply the subject matter lacking in Ramsey et al. Thus, individually or in combination, Ramsey et al. and Tong fail to teach or suggest each and every feature recited in Applicants' independent claim 1. For at least this reason, Applicants' independent claim 1 is patentable over Ramsey et al. in view of Tong. Applicants therefore assert that claims 2, 7, and 9-18 are also allowable over Ramsey et al. in view of Tong, at least by reason of their dependency from patentable claim 1.

In light of the foregoing, reconsideration and withdrawal of the rejection of Claims 2, 7, and 9-18 as being unpatentable over Ramsey et al. in view of Tong is respectfully requested.

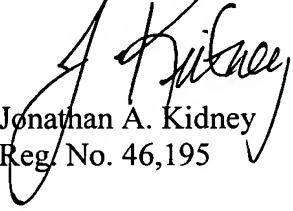
### CONCLUSION

In view of the foregoing remarks, Applicants submit that the application is now in condition for allowance. If the Examiner believes that the application is not in condition for allowance, Applicants respectfully request that the Examiner contact the undersigned attorney if it is believed that such contact will expedite the prosecution of the application.

In the event this paper is not timely filed, Applicants petition for an appropriate extension of time. Please charge any fee deficiencies or credit any overpayments to Deposit Account No. 50-2036.

Respectfully submitted,

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